

de Gucena 2018-01875

## Feature Activity 06 Documentation

### Listing networks

```
C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker network ls
```

NETWORK ID	NAME	DRIVER	SCOPE
1d6d4e8a22d0	bridge	bridge	local
fbe66234e2a1	host	host	local
5788dfa75d47	none	null	local

### The default “bridge” network

```
C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker network inspect bridge
```

```
[
  {
    "Name": "bridge",
    "Id": "1d6d4e8a22d0b0cc8e954928deabac64c6aab12e0d86762697424b1b9299f82",
    "Created": "2021-05-16T13:07:19.3674597Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": null,
      "Config": [
        {
          "Subnet": "172.17.0.0/16"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {},
    "Options": {
      "com.docker.network.bridge.default_bridge": "true",
      "com.docker.network.bridge.enable_icc": "true",
      "com.docker.network.bridge.enable_ip_masquerade": "true",
      "com.docker.network.bridge.host_binding_ipv4": "0.0.0.0",
      "com.docker.network.bridge.name": "docker0",
      "com.docker.network.driver.mtu": "1500"
    },
    "Labels": {}
  }
]
```

```
C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker run --rm -d --name dummy eliezerjasper/ping:1.0
895f50561ba7e623c0d619523039e2d0aff296a1d6f4892e596ba5c73cd03cca
```

```
C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker network inspect bridge
[
  {
    "Name": "bridge",
    "Id": "1d6d4e8a22d0b0cc8e954928deabac64c6aab12e0d86762697424b1b9299f82",
    "Created": "2021-05-16T13:07:19.3674597Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": null,
      "Config": [
        {
          "Subnet": "172.17.0.0/16"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {
      "895f50561ba7e623c0d619523039e2d0aff296a1d6f4892e596ba5c73cd03cca": {
        "Name": "dummy",
        "EndpointID": "a2a05d520a0d3bab7cce22d7d46eee633b2ad4a39712b02adbebed5d778db6c3",
        "MacAddress": "02:42:ac:11:00:02",
        "IPv4Address": "172.17.0.2/16",
        "IPv6Address": ""
      }
    },
    "Options": {
      "com.docker.network.bridge.default_bridge": "true",
      "com.docker.network.bridge.enable_icc": "true",
      "com.docker.network.bridge.enable_ip_masquerade": "true",
      "com.docker.network.bridge.host_binding_ipv4": "0.0.0.0",
      "com.docker.network.bridge.name": "docker0",
      "com.docker.network.driver.mtu": "1500"
    },
    "Labels": {}
  }
]
```

```
C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker run --rm -d -e PING_TARGET=172.17.0.2 --name pinger eliezerjasper/ping:1.0
1fbee9d106abcba8754d86847396790ae25bf869766b3747a6ea8d209d66c4e
```

```
C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker ps
CONTAINER ID   IMAGE                COMMAND                  CREATED        STATUS        PORTS        NAMES
1fbee9d106ab   eliezerjasper/ping:1.0  "sh -c 'ping $PING_T..."  7 seconds ago  Up 5 seconds  pinger
895f50561ba7   eliezerjasper/ping:1.0  "sh -c 'ping $PING_T..."  49 seconds ago  Up 47 seconds  dummy
```

```
C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker logs pinger
```

```
PING 172.17.0.2 (172.17.0.2) 56(84) bytes of data.
64 bytes from 172.17.0.2: icmp_seq=1 ttl=64 time=0.114 ms
64 bytes from 172.17.0.2: icmp_seq=2 ttl=64 time=0.060 ms
64 bytes from 172.17.0.2: icmp_seq=3 ttl=64 time=0.060 ms
64 bytes from 172.17.0.2: icmp_seq=4 ttl=64 time=0.059 ms
64 bytes from 172.17.0.2: icmp_seq=5 ttl=64 time=0.093 ms
64 bytes from 172.17.0.2: icmp_seq=6 ttl=64 time=0.066 ms
64 bytes from 172.17.0.2: icmp_seq=7 ttl=64 time=0.120 ms
64 bytes from 172.17.0.2: icmp_seq=8 ttl=64 time=0.070 ms
64 bytes from 172.17.0.2: icmp_seq=9 ttl=64 time=0.061 ms
64 bytes from 172.17.0.2: icmp_seq=10 ttl=64 time=0.113 ms
64 bytes from 172.17.0.2: icmp_seq=11 ttl=64 time=0.050 ms
64 bytes from 172.17.0.2: icmp_seq=12 ttl=64 time=0.092 ms
64 bytes from 172.17.0.2: icmp_seq=13 ttl=64 time=0.096 ms
```

```
C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker stop pinger
pinger
```

```
C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker run --rm -d -e PING_TARGET=dummy --name pinger eliezerjasper/ping:1.0
524efe767da657d20a4556079f31ac589e884119f677eff0b02007ac51f47b06
```

```
C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker ps
CONTAINER ID   IMAGE                COMMAND                  CREATED        STATUS        PORTS        NAMES
895f50561ba7   eliezerjasper/ping:1.0  "sh -c 'ping $PING_T..."  2 minutes ago  Up 2 minutes  dummy
```

```
C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker stop dummy
dummy
```

```
C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker ps
CONTAINER ID   IMAGE                COMMAND                  CREATED        STATUS        PORTS        NAMES
```

## Managing custom networks

```
C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker network create skynet
09dda4968fe3bd5e30c011a7d277463437123e5b0ed10662c9391cae1e9a4bcc

C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker network ls
NETWORK ID          NAME                DRIVER              SCOPE
1d6d4e8a22d0        bridge              bridge              local
fbc66234e2a1        host                host                local
5788dfa75d47        none                null                local
09dda4968fe3        skynet              bridge              local

C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker network inspect skynet
[
  {
    "Name": "skynet",
    "Id": "09dda4968fe3bd5e30c011a7d277463437123e5b0ed10662c9391cae1e9a4bcc",
    "Created": "2021-05-16T16:33:40.1361872Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": {},
      "Config": [
        {
          "Subnet": "172.18.0.0/16",
          "Gateway": "172.18.0.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {},
    "Options": {},
    "Labels": {}
  }
]
```

## Adding containers to a network

```
C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker run --rm -d --network skynet --name dummy eliezerjasper/ping:1.0
2f45376af7f758661fb0ace675a0695d48b4401c31e609b6d611b57cc674d2ce5

C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker run --rm -d --network skynet -e PING_TARGET=dummy --name pinger eliezerjasper/ping:1.0
20d9c3ab049b166c4437becab655ad338d9f1c7953076a2118291017477ce1e9

C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker logs pinger
PING dummy (172.19.0.2) 56(84) bytes of data.
64 bytes from dummy.skynet (172.19.0.2): icmp_seq=1 ttl=64 time=0.088 ms
64 bytes from dummy.skynet (172.19.0.2): icmp_seq=2 ttl=64 time=0.085 ms
64 bytes from dummy.skynet (172.19.0.2): icmp_seq=3 ttl=64 time=0.141 ms
64 bytes from dummy.skynet (172.19.0.2): icmp_seq=4 ttl=64 time=0.123 ms
64 bytes from dummy.skynet (172.19.0.2): icmp_seq=5 ttl=64 time=0.138 ms
64 bytes from dummy.skynet (172.19.0.2): icmp_seq=6 ttl=64 time=0.065 ms
64 bytes from dummy.skynet (172.19.0.2): icmp_seq=7 ttl=64 time=0.104 ms

C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker stop pinger
pinger

C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker stop dummy
dummy
```

## Connecting between containers in a network

```
C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker run --rm -d --name widgetdb -e POSTGRES_PASSWORD=password --network skynet -p 5432 postgres
779414b52f1e6fc5f389d7bd986b15c47028e63672b69f37a3e41856cf4e4383

C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker run --rm -d --name gadgetdb -e POSTGRES_PASSWORD=password --network skynet -p 5432 postgres
d714196f699e72caae74355d21408f481d03df4ada05e3688a85d880b297262

C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
d714196f699e   postgres      "docker-entrypoint.s..." 5 seconds ago  Up 3 seconds  0.0.0.0:62740->5432/tcp             gadgetdb
779414b52f1e   postgres      "docker-entrypoint.s..." 19 seconds ago  Up 17 seconds  0.0.0.0:62729->5432/tcp             widgetdb

C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker exec -it widgetdb /bin/bash
root@779414b52f1e:/# psql -U postgres
psql (13.3 (Debian 13.3-1.pgdg100+1))
Type "help" for help.

postgres=# \q
root@779414b52f1e:/# psql -U postgres -h gadgetdb
Password for user postgres:
psql (13.3 (Debian 13.3-1.pgdg100+1))
Type "help" for help.

postgres=# \q
root@779414b52f1e:/# exit
exit

C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker stop widgetdb gadgetdb
widgetdb
gadgetdb
```

## Binding ports to the host

```
C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker run --rm -d --name widgetdb -e POSTGRES_PASSWORD=password --network skynet -p 5432:5432 postgres
29b6e9c9f188d0a59d8b1fe5cffc90ad88788d85acf5d68d2627b8f3f1e12f69

C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
29b6e9c9f188   postgres      "docker-entrypoint.s..." About a minute ago  Up About a minute  0.0.0.0:5432->5432/tcp, :::5432->5432/tcp  widgetdb

C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker exec -it widgetdb /bin/bash
root@29b6e9c9f188:/# psql -U postgres -h localhost
psql (13.3 (Debian 13.3-1.pgdg100+1))
Type "help" for help.

postgres=# \q
root@29b6e9c9f188:/# exit
exit

C:\Users\Eliezer Jasper\Documents\GitHub\ME8_Containerization_and_Docker\6-networking>docker stop widgetdb
widgetdb
```